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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,816	11/12/2003	Joeri Lof	081468-0306525	5408
909	7590	01/09/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			LU, TONY W	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2878	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/705,816	LOF ET AL.	
	Examiner	Art Unit	
	Tony Lu	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/12/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/12/03, 2/20/04, 1/07/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in EPO 02257822.3 on 11/12/2002. It is noted, however, that the above mentioned foreign priority paper is not found.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4,8,21 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 4, on line 3, "a correction is applied" is unclear on what and where the correction is applied.

As for claim 8, on line 3, "a correction is applied" is unclear on what and where the correction is applied.

As for claim 21, on line 3, "applying a correction" is unclear on what and where the correction is applied.

As for claim 25, on line 3, "applying a correction" is unclear on what and where the correction is applied.

Appropriate corrections and clarifications are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,9,18-21 and 26, as understood by the examiner, are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi US5610683.

With respect to claims 1 and 9, Takahashi discloses projection exposure system comprising: a support structure(5) configured to hold a patterning device(6), the patterning device configured to pattern a beam of radiation according to a desired pattern; a substrate table(14) configured to hold a substrate(12); a projection system(4) configured to project the patterned beam onto a target portion of the substrate; a liquid supply system(9) configured to provide a liquid in a space between a final element of said projection system and the substrate(see fig.1); and a measurement system(alignment measuring system) configured to measure, not through said liquid, the location of a each of a plurality of points(a pattern on the substrate) on said substrate(read, col.5-6). The system includes an alignment sensor or level sensor(6,15,16) for detecting the height and/or tilt of the substrate and/or the pattern printed on the substrate.

With respect to claim 2, per the above discussion, Takahashi discloses the substrate table comprises a reference (16) and said measurement system is configured to measure, not through said liquid, the location of said reference(col.5).

With respect to claim 3, per the above discussion, Takahashi discloses the reference(16) is used for the purpose of aligning the pattern of the mask/reticle(1) and that of the substrate(12), hence the pattern of the substrate and/or the plurality of points on the substrate are determined relative to the reference.

With respect to claim 4, per the above discussion, Takahashi discloses the measurement system is configured to measure the location of the reference at an exposure position(col.2 and col.5).

Takahashi's system inherently performs the claimed method steps(claims 18-21 and 26).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8,10-17, 22-25 and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi US5610683.

With respect to claims 5-8, per the above discussion, although Takahashi lacks a clear teaching of a plurality of alignment marks on the substrate, the use of alignment

marks in order to provide a more accurate alignment in an alignment system would have been obvious to one of ordinary skill in the art

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takahashi accordingly in order to provide more reliable alignment results from the system.

With respect to claim 10, per the above discussion, although Takahashi discloses an optical alignment sensor or a level sensor(6,15,16), but Takahashi fails to specify the exact operation of the sensor as claimed, it would have been inherently and obviously included to one of ordinary skill in the optics art, however, if not, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takahashi accordingly in order to provide a more clear operation instruction of the system.

With respect to claims 11 and 12, per the above discussion, note that Takahashi discloses multiple processing stations(14, 11-2, 30) and/or the substrate is being transfer between the processing stations, but Takahashi lacks a clear teaching of the measurement system being provided at a separate measurement station and the substrate table being movable between the exposure system and measurement stations. Using a separate measurement station in order to provide thorough measurement and a movable substrate table in order to reduce any further displacements due to transfer mechanisms that transfer the substrate to multiple processing station would have been obvious to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takahashi accordingly in order to prevent any unexpected

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displacement of the substrate on the substrate table/holder. This would provide a more accurate alignment performance of the system.

With respect to claim 13, per the above discussion, although Takahashi discloses an interferometer(15,16) with the reference(16) but Takahashi lacks a clear inclusion of a transmission image sensor, the interferometer would have been inherently included an image transmission performance, however, if not, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takahashi accordingly in order to provide a better visual information/data of the alignment performance of the system.

With respect to claims 14-17, per the above discussion, although Takahashi the exposure project system but Takahashi fails to specify a controller and/or a display or a device for generating a map of the substrate's position. The use of a controller and a display device in an exposure projection system for positioning and/or aligning the substrate would have been known and obvious to one of ordinary skill in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Takahashi accordingly in order to provide more sufficient devices and/or equipment for the alignment and/or positioning performances of the system.

The proposed system of Takahashi inherently performs the claimed method steps(claims 22-25 and 27-33).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) McCoy et al US5648854 disclose an alignment system having a plurality of alignment marks on the wafer.


2) Nishi US 6051843 discloses an exposure system having a plurality of alignment marks on a wafer and a plurality of reference marks formed on a stage.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Lu whose telephone number is 5712728448. The examiner can normally be reached on M-F 9:00am- 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 5712722328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


TL


Que T. Le
Primary Examiner